

DESCRIPTION OF A NEW SPECIES OF RANZANIA  
FROM THE HAWAIIAN ISLANDS.

BY OLIVER P. JENKINS.

[ With Frontispiece. ]

*Ranzania makua* n. sp.

D. 17, A. 18, C. 19, P. 13. Depth in length to base of caudal  $2\frac{1}{8}$ . Head in length  $2\frac{5}{8}$ , eye in head 6. Eye in snout,  $2\frac{1}{3}$ . Body much compressed, the ventral margin presenting a sharp, evenly curved keel. In a lateral view it is deepest just behind the pectoral fin, narrowing but slightly to the abruptly truncated posterior extremity, but anterior from this point both dorsal and ventral margins curve gradually to the truncated snout. The eye placed considerably above the axis of the body, and a little nearer the snout than the base of pectoral, and very close to the margin of the dorsal outline. Teeth formed into a beak like that of a turtle, completely hidden by projecting folds of skin, which form a truncated opening to mouth.

Gill opening just in front of the upper base of the pectoral, covered by a two-lobed valve.

Body covered by an armor of small plates, more or less regularly hexagonal. This structure is more or less concealed in the fresh specimen.

Pectoral fin in height slightly less than  $\frac{2}{3}$  length of head. It is well above the axis of the body. Dorsal in height nearly equaling length of head. Height of anal somewhat less. Dorsal and anal each separated from the caudal by a notch.

The form of the rays of the fins is interesting. During most of their extent they form flat horny rods, but at the outer extremity each divides into a great number of branches, spreading out like a fan, the edges of which reach those of the contiguous rays. Fig. 1 gives the de-

tail of the three lower rays of the pectoral, Fig. 2 of the extremity of two and parts of two others of the dorsal, and Fig. 3 three rays of the caudal fin.

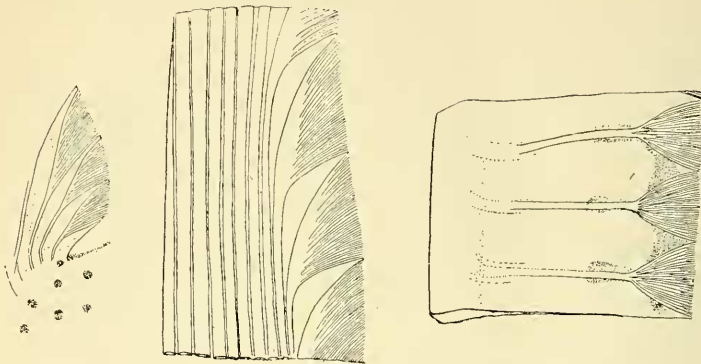


Fig. 1.

Fig. 2.

Fig. 3.

Coloration very brilliant in fresh state. Sides bright silvery. Upper part of body dark; the sides of the body are decorated by bright silvery bands, which have the following disposition: The anterior ones more distinct and definite. The anterior ones are convex anteriorly, and nearly parallel. The first three silver bands have distinct black bands as borders to the bright silver bands. First band silver portion 5 mm. broad; the most anterior point of its curve is 2 c. m. from end of snout. Second band begins at upper anterior margin of eye, bends forward to within 4 c. m. of end of snout, then curves gently backward and downward, becoming indistinct near ventral margin of the body. Third band begins at lower anterior margin of eye, bends but slightly forward then downward and backward, becoming indistinct near ventral margin of body. The black band about posterior margin of third silver band on part of its course gives way to a row of black spots. The fourth, fifth, sixth and seventh silver

bands are branched above and in some cases below. Along their middle courses they are not bordered by the black bands, but possess numerous distinct black spots, the black bands being retained as margins to their lower portions and in some places along their upper portions. Fourth lies behind the eye. It begins near dorsal line, runs slightly forward, just reaching the posterior margin of the eye, then downwards and backwards, branching below into two bands; fifth band forms two branches on one side, three on other side of body between eye and opercular opening; sixth extends from base of pectoral; seventh indistinct, arising from just behind base of pectoral. All these bands just described pursuing nearly parallel courses downwards, curving backwards and becoming indistinct near ventral margin of body. The remaining silver bands are irregular, forming an indistinct network, and system of silver spots, with but few black dots.

This species is in general form much like *Ranzania truncata* Retzius, but differs from it: (1) in having a smaller eye; (2) in having the eye well above the level of the mouth; (3) in having both eye and pectoral fins placed above the axis of the body; (4) in possessing higher vertical fins, and (5) in the coloration. The following is a table of measurements taken from the fresh specimen:

	c. m.
Total length.....	51.
Length of body to base of caudal fin.....	47.5
Head.....	18.7
Depth.....	25.
Breadth of body just above pectoral fin.....	7.
Snout.....	7.
Eye.....	3.
Vertical diameter of opercular opening.....	3.
Vertical diameter of mouth opening.....	3.5
Posterior margin of eye to origin of pectoral.....	9.5

Height of dorsal fin.....	17.5
Height of anal fin.....	15.5
Length of caudal.....	3.5
Base of caudal.....	19.
Length of pectoral.....	11.5
Base of pectoral.....	3.

The proposed specific name *makua* is, according to Mr. C. B. Wilson, of Honolulu, a native name of the fish, and signifies "the source from which the Bonito and Albicore sprung in after ages." The specimen of which the above is a description is now in the Museum of the Leland Stanford Jr. University. The University is under obligations to Mr. Chas. B. Wilson, of Honolulu, for this valuable contribution. The fish was caught January 25, 1892, by Mr. Hiel Kapu, at the mouth of Pearl Harbor, and was frozen in ice and sent to the University by Mr. Wilson. It arrived in an excellent state, which allowed me to make a study of it while it was still fresh. It was immediately drawn in colors by Miss Anna L. Brown. In answer to a letter of inquiry, Mr. Wilson gave me the following interesting account of the fish and its capture:

"It was taken in shallow water three or four feet deep. It is a deep-sea fish by habit. It was seen by a party of fishermen in a canoe going from shore to a deep-sea fishing ground, when they were not more than a hundred feet from the beach near the entrance to Pearl Harbor, Oahu. The man who first saw it, drew the attention of the leader of the fishing party to the appearance of this strange object close to the canoe, at the surface of the water. The leader told him to 'hit it with his paddle,' but the man refused, saying he was afraid that it was an 'Akua' (Spirit or Deity). The leader himself then hit it with his paddle on the side of the head, when it immediately shot off in a semi-circular path, through the break-

ers, in front of the canoe, and ultimately landed (in its terror) on the beach about 600 yards away, where the fishermen saw it and captured it still alive, a few minutes afterwards. It frequents the deep ocean alone, and is believed by the natives to be the 'MAKUA' source from which sprang in after ages the Bonito and Albicore. In its habits it is like them, and is only seen in shallow water when in flight from its natural enemies, the shark, sword-fish, etc., and as they when fleeing from their enemies rise as near the surface of the water as they can and seek the shelter and protection of some floating object such as a log, a ship's hull, or the like, so doubtless in this case the Apahu was seeking the refuge of the canoe's side when it was first seen. I have discovered by inquiry from the native Hawaiians, that all three species of fish when driven into shallow water seem to be dazed and lose control of themselves, and ultimately are forced on the beach by the action of the waves. One other specimen of the 'APAHU,' the second besides the one I sent to the University, was cast up on the beach at Waikiki, near the residence of Edmund Hart. The finders cooked it and ate it. They said it was very fine eating. These are the only two specimens seen here in ages. It is a very rapid swimmer quite as swift or swifter probably than the dolphin. When it was struck, it disappeared like a flash of lightning and the fishermen did not expect to see it again. It was on account of this property of remarkable speed which it possessed that I recommend in my original communication to Prof. Jordan, that the attention of prominent yacht builders be called to its lines in the hope that they might find something of use therefrom."

Since the above was written Rev. E. B. Tuthill has sent to Dr. Jordan for examination a number of drawings

of fishes of Honolulu. Among them is a drawing of a specimen of this species. The date of its capture is not given, and it is possible that the drawing was taken from the specimen referred to by Mr. Wilson as the second one known on the Islands besides the one here described. According to Mr. Tuthill, the species is very rare and not known to the fishermen.